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The Adirondack Reservation.

THE special report of the New York State Forest Commission, recently published, insists upon the importance of an absolute purchase of lands within the Adirondack preserves, and there can be no doubt that the ownership in fee-simple of these forest-lands is the first step to a perfectly satisfactory solution of this vexed problem. The proposal, that the state should acquire these forests by purchase and take absolute possession of them, has been discussed for several years in all the organs of public opinion throughout the state, and it is an encouraging fact that not one newspaper has at any time published a paragraph in opposition to the plan. To carry out this scheme, however, will cost a considerable sum of money at the outset, and if any method can be devised for diminishing this expense without sacrificing any of the advantages of immediate and complete ownership, it ought to be considered.

One plan which proposed to accomplish such an end was authorized in the law of 1893, under which the Forest Commission has power to offer a lumberman a certain sum, say, $1.50 an acre, for forest-land, and give him the right to remove the Pine, Spruce and Hemlock within ten years. The privilege of cutting under this agreement is restricted to trees more than twelve inches in diameter at a height of three feet above the ground. At the end of ten years or less the state would in this way acquire absolute possession of the land, while the forest would consist of hard-wood trees and young conifers below the size-limit of the law. Such a forest would show little diminution in its canopy of foliage, and would, in most cases, serve all its functions as a protector of the water-supply, while the young conifers left would in time furnish another crop of timber and a revenue to the state. There is a good deal to commend in this method of securing uncut timber-land.

A plan which does not involve ownership in fee-simple, but which gives the state a certain control of the forests, is provided for in the law of 1892, under which a contract can be made between the state and a private owner to the effect that the state will grant exemption from taxes, provided the owner will agree to restrict all his timber-cutting to certain species and to a minimum diameter of twelve inches on the stump. Of course, if it is impracticable for the state to own forest-lands, the next best thing to do will be to control the cutting of the trees. But the scheme as it stands is open to some serious objections. In the first place, a twelve-inch limit is too small for Spruce and Tamarack, and in the case of Poplar it is too large. The mere fact that a tree has attained a certain diameter on the stump may not be any reason why it should be cut down. Under correct forest-management a great many other things besides the diameter of a tree must be considered before it is condemned to the axe. It may be ready to cut simply because it has reached a certain size, or because it is so situated that its removal would be a benefit rather than an injury to the forest, or because some definite provision has been made for the occupation of the ground it covers by some other forest-growth, at least equally valuable. It can readily be seen that whole groups of Spruce might be cut away while there was nothing on the ground to replace them. It may be seen also that the constant cutting of Spruce, Tamarack and Poplar would eventually reduce the number of trees of these species to a marked degree. It is much to be feared, too, that the cutting of these or any other trees by lumbermen without any supervision of a trained forester would entail much more damage upon the woods than is necessary. That is, under the act as it stands a great many trees are likely to be cut which should be allowed to stand, and the removal of trees which it is quite proper to cut would be carried out in such a way as to do permanent injury to the woods.

What the state needs in the first place is skilled counsel in all matters of forest theory and practice. If there is to be any agreement between the state and private owners under which the state is to remit the taxes of forest-land, or, what is the same thing, to pay indirectly the forest-owners a certain sum of money for the assurance that the land is to be kept in permanent forest, it may as well be understood that such an assurance is worth little when the only restraint upon the owner is a limit to the size of the logs which he is to cut. The woods will never be safe until they are practically under the control of skilled foresters who will see that every operation is conducted with a view to increase or sustain the productive capacity of the whole. Of course, some concession must be made to owners of these lands, but in the long run they will receive more from their land, under scientific management, than they will if allowed to cut at pleasure above any arbitrary size-limit. It would be better for the state and better for the owner if a definite plan of management were first formulated with the understanding that all the work should be done under the direction and control of a competent forester.

SOME time ago the Legislature of this state, in a gush of easy-going benevolence, voted a million dollars to be used for furnishing work for the unemployed in the parks of this city. Ever since then the Park Commissioners have been pelted with censure on every side because they were not able to set two or three thousand men at work at once. Much of the work needed on parks cannot be done at all at this inclement season. Any work of importance must be carefully prepared for by preliminary surveys and estimates. If it had been understood that this money was to be expended in the course of a year, designs for improvements of various sorts could have been made ready, but as such a sudden appropriation was utterly unlooked for, it is not the fault of the Board that they are unprepared to spend it on sight to any good purpose.

One of the things which can be best done at this season is the thinning out and pruning of the trees in the woods of the new parks, as well as in Central Park. This is work which ought to be done. It is not a work upon which thousands of unskilled workmen can be used to any advantage, but it is a work which a well-organized Park Board ought to be ready to undertake with a strong force at a

moment's notice. As a matter of fact, however, under the system of political appointment that has prevailed here there is hardly one foreman in the entire force who is able to properly direct a gang of men in the woods, even after the trees which are to be felled have been marked. Of all "the unemployed" in New York who want work, there are probably not a dozen who know how to handle an axe skillfully. There ought to be in the employment of the Park Board many foremen who could go into the woods and select the trees which need pruning and those which need felling. Under proper management the superintendent should now have a skilled force with years of experience. But there is nothing like a trained body of men in the park service who have been educated and disciplined to park work, and if this necessary forest-work is attempted now on any considerable scale it will probably mean that a hundred men will be turned loose in the woods who may do damage in seven days that it will require seven years to heal.

We have urged, year after year, the necessity of proper work in these plantations, but the Park Board has never authorized the Superintendent to go ahead; no satisfactory survey has ever been made; no scheme of management has ever been adopted; no men have been trained for the purpose. There never was a more baseless assumption than the one that anybody can cut down a tree, and that any one knows what trees ought to be cut. These park-woods will never become what they should be until the axe is used freely in them, but, on the other hand, there is nothing which can do so much harm in the woods as an axe in the hands of an ignorant man.

The Pride of China Tree.

THIS tree, Melia Azedarach, is the type of a small family to which the Mahogany-tree also belongs. It has been so long cultivated in the tropical and extra-tropical regions of the two worlds, that it is impossible to locate with any precision its original home, although the Swiss botanist, Boissier, believed that it was indigenous in some of the provinces of northern Persia.

The China-tree was introduced into the United States about a hundred years ago by the French botanist, Michaux, who first planted it in the neighborhood of Charleston, South Carolina, where he had a garden, into which he brought American plants gathered in his various journeys undertaken under the auspices of the King of France, and where he planted, too, a few exotic trees which he thought would thrive in the southern states. The Melia found in the Carolinas the conditions which suited it, as it has wherever it has been planted beyond the influence of severe frosts, and soon established itself in the neighborhood of dwellings, and then spread into the forest, where it is now, in some places at least, as much at home as any native tree. The Pride of China rarely exceeds the height of fifty feet, and develops a wide-spreading head, which makes it desirable as a shade-tree. The compound twice-pinnate deciduous leaves, of a dark lustrous green, make a light and graceful foliage. The flowers, which are produced in clusters, are of a pale bluish-lilac color and quite fragrant. The fruit is a globose yellowish berry-like drupe, containing a round stone, which is five-celled, with a seed in each cell.

The root of Melia has been used in the southern states medicinally to destroy intestinal worms, and the whole tree has the reputation of being obnoxious to insects. For this reason it is often planted near stables to drive away flies, and that the horses may eat the fruits, which are said to prevent bots. In some countries the stones are strung like beads for rosaries, so that the tree is often called "arbor sancta." The seeds yield an oil which may be used in lamps. The berries have received the reputation at the hands of some writers of being poisonous; certainly, they are not so to horses, and in India they are used in medicine.

In a recent issue of *The Garden and Field*, of Adelaide, the alleged poisonous nature of the fruit of this tree is discussed, and it is asserted that "a Melia-tree requiring pruning, its superfluous branches were cut off and thrown over a fence into a pasture. Several pigs and cows ate the berries; the result was that the pigs died and the cows became very ill, but recovered after three or four days, one effect being the falling off of milk in one day from half a bucket to half a cupful. It is also stated that in some places the pulp of the berries is used for poisoning dogs, being mixed with food for the purpose." A case has been recorded of a European girl in India, who, having eaten the berries, became insensible and died. On the other hand, the best writers on the medical properties of plants make no allusion to the poisonous nature of the fruit of this tree; but as the Melia is so often planted in our southern cities, where it produces fruit in great abundance and is easily accessible to children and domestic animals, its real properties should be determined, and we shall be glad to record the results of any observations on this subject with which our correspondents and readers may favor us.

Melia Azedarach produces handsome brownish or reddish, rather coarse-fibred, wood, which is handsomely marked, and is often used for furniture in tropical countries.

A remarkable form of this tree is now often cultivated in the southern United States, especially in Texas, where it is supposed to have originated some twenty or thirty years ago. This is the variety umbraculifera, or, as it is commonly called, the Umbrella Tree, and its habit and peculiar mode of growth are well displayed in the illustration on page 95 of this issue, made from a photograph of a tree growing in a garden at Riverside, in southern California, for which we are indebted to Dr. James C. White, Boston, Massachusetts. We have been unable to find any account of the origin and history of this variety, which does not appear to be known beyond the limits of the United States, and we shall be very much obliged for any information relating to its history.

Vegetable Sculpture in China.

THE fantastic and grotesque training of shrubs and trees, which reached its acme among the Dutch, is usually attributed to the gardeners of Holland, but should not, I think, be placed wholly to their credit, for, as traders, the Dutch had visited China previous to the development of vegetable sculpture in Holland. These bold navigators noticed the curious-trained plants of that country, and, admiring these vegetable curiosities, introduced the fashion into their native land.

On my first visit to Canton in 1883 I was amused and instructed by some of the noted gardens of that city. The "Fa-ti," literally flower-place, is the most interesting of the gardens. This is an open space of ground on the west bank of the Pearl River, and has been occupied by Chinese nurserymen and florists for ages. It is surrounded with a closely packed mass of houses; the streets are only six feet wide, and their labyrinthian windings and intersections lead the stranger into a veritable Chinese puzzle. The alleys are covered with filth and garbage, and bad sewerage is evident, and they are crowded with jabbering half-naked Celestials and lazy mangy dogs.

An imposing arched structure of enameled porcelain in blue and yellow forms one of the entrances to the garden. Long pendent sign-boards hang on either side, on which a distracting combination of gilded strokes and dots are emblazoned on a red ground, and these set forth in flowery phrases the name of the garden and its proprietor, also the excellence of his merchandise and his incomparable honesty as a trader. Inside the entrance the garden opens up into a series of long parallel beds, divided by walks and margined with rows of green enameled pots containing a variety of trained shrubs and trees. The vegetable sculptor is conscious of the inadequacy of a mere shrub to give his picture the higher artistic tones of suggestion and expres-

sion. It does very well for the outline of his figure; but the heights of æsthetic extravagance are reached by using painted porcelain for the finer touches and features which cannot be made sufficiently realistic by green twigs alone.

Facing the entrance there were two Ligustrum sinensis dragons, about ten feet high, with painted porcelain eyes, scarlet sheet-tin jaws, serrated iron backs and shell-tipped claws. These monsters, which were crouching to spring upon the first St. George that entered, were really quite tame and were growing in eighteen-inch pots. There were men made of a species of Ulmus, and women of Cerissa fœtida. The latter tottered on tiny clay-formed feet, the mark of the highest Celestial beauty, and had enameled heads and hands to match. The long sleeves and flowing robes of the high-caste Chinese dame were skillfully contrived with pliant branches. They all looked limp and languid and had the demure downcast look which is the regulation mien of the modest dwellers of the "inner chambers."

These artists select plants to suit their subjects, and there is certainly something appropriate in that aggressive prickly plant, Euphorbia splendens, to represent the tragic villain of the Chinese play. He does not resemble the cool, cynical black-mustached villain that parades his rascalities in our theatres. The Chinese villain is a demon, and looks it. The red and black lines painted on his face make him look very terrific. His Euphorbia body is girt about with edge tools, and he invariably carries a murderous-looking trident; his posture is the one of tragic menace, which he assumes before he turns a somersault and spears his rival in the final leap.

But I am inclined to think that the figure of the "foreign man" is the highest achievement in the garden. This effigy usually masquerades in a suit of Atalantia buxifolia, and occasionally Zizyphus vulgaris, and the Celestial artist who trained the twigs to form the "foreign devil" that honors the "City of Rams" with a visit, had a fund of sardonic humor that puts Cruikshank and Du Maurier in the shade. He stands erect on a brick pedestal, with one of his legs bent forward, à la militaire; his baggy trousers and long claw-hammer coat, the tails slightly curled up at the ends, are of the cut of a by-gone generation. His right arm is raised, and in his hand he flourishes a cane. His face is painted in a patchy fashion; he has mutton-chop whiskers, a delicately curled mustache and a wedge-shaped imperial. This is crowned with an old-fashioned plug-hat, which is slightly tilted back and bent over at an angle which gives the figure an air of conceited and comical audacity. The "foreign man" is not grown extensively, and he is not nearly so popular as the Euphorbia demon.

Boats called "sam-pans" are shaped in Rubus rosæfolia, and junks in Photinia Japonica. The clay figures that people these boats are cast in natural attitudes, and they have nothing in common with the perpendicular Shems and Hams associated with the Noah's arks of our earlier days. The postures and natural attitudes of the floating population are caught as if by a photographic snapshot. Men, women and children lounge, squat, gesture and mimic the playfulness of youth, the inertia of age, and the workaday life of manhood; all within the limits of a model two feet long.

Ficus retusa, the Banyan-tree of China, is peculiarly amenable in the hands of the trainers, and figures of the melancholy stork, the stately crane and the strutting peacock are cunningly fashioned with its branches. This tree and the Ligustrum are also used to mimic griffins and pagodas. The latter have small bells hung from the abutting angles of each story that tinkle melodiously to passing zephyrs. On models of fish the vegetable sculptor expends considerable labor, and, judging from their number and variety, they must be his favorite subject. All sorts of fish, from the festive shark to the untinned lobster, were sporting about among the pot-plants in lively profusion. These all had large round earthenware eyes with a comically cold and stony expression. The gardens also abound in a collection of jars, vases, urns and other curiosities, not in blue china, but in green privet.

A frame-work of whole or split stems of Bambusa flexuosa is used for the larger figures, and the branches are tied sometimes with "rhea," the fibre of Bœhmeria nivea, but more generally with "wong-ma," the fibre of the Wong-ma-chuk, or Yellow Bamboo. This last-named fibre is exceptionally strong and durable, and much superior to raffia, the cuticle of Raphia rufta, or the old-fashioned bast, the inner bark of Paritium elatum.

It is remarkable that the Chinese "fa-wong," or flower-king, as the gardener is called, does not care to part with his works of art. If you offer to buy, the price he quotes is almost prohibitive. The fact is, these plants are not grown for sale, but for hiring out as decorative plants at marriage ceremonies and for other festive occasions.

I have heard the Chinese described as stolid and unimaginative. This is a mistake. When the vegetable sculptor gives his genius rein he can ascend to heights of delirious conception, and he creates strange contorted monstrosities in moulded clay and green branches. The dragon and the griffin may be mythical monsters to us; to the Chinaman they are real, and their pictures have been handed down to him by the long line of ancestors he worships. But his fertile fancy conjures up animal horrors far exceeding the dragon and the griffin in the complicated anomalies of form and hideous expression. However ridiculous or anomalous foreigners may be inclined to consider these clever distortions of vegetable growth, one cannot fail to admire the skill and patience so conscientiously expended on the work, and to appreciate the imagination and genuine creative faculty which can conceive so clearly what is afterward carried out so successfully.

Manchester-by-the-Sea, Mass. *A. B. Westland.*

Foreign Correspondence.

London Letter.

Edgeworthia chrysantha is a handsome winter-flowering shrub which does not appear to be known in horticulture, although introduced from China by Fortune fifty years ago. In the temperate-house at Kew it is represented by a large bush five feet high, with numerous thick stems, branched above and bearing, in summer, terminal clusters of broad lanceolate green leaves, which fall off in the autumn, and are succeeded in February by terminal ball-like umbels of bright lemon-yellow Daphne-like fragrant flowers. These last several weeks, gradually changing color to creamy white; they are attractive to the eye throughout, and exhale a most alluring Violet-like odor. Planted out in a border of good soil this shrub has taken care of itself for many years, but it has never flowered so freely as this year. It may be propagated either by division or from cuttings. There is a figure of it, a very poor one, in *Lindley's Botanical Register*, 1847, t. 48, where Fortune states that it flowers in Chusan in July, and that in order to induce it to flower the Chinese bend the stems round so as to form a loop, but this has not been found necessary at Kew. In the *Botanical Magazine*, t. 7180, there is a figure of E. Gardneri, prepared from a plant flowered at Kew in 1891, and which had been raised from seeds sent from the Himalayas. Sir Joseph Hooker considers this Edgeworthia and E. chrysantha to be specifically identical, but for garden purposes at any rate they must be kept distinct, E. Gardneri having thin hairy stems and smaller and less silky leaves than the Chinese plant, from which it also differs in not losing its leaves during winter. E. chrysantha is a handsome shrub for the greenhouse, but, so far as I know E. Gardneri, I should scarcely recommend it to the notice of horticulturists.

Senecio Ghiesbreghtii, although in cultivation for many years and long a conspicuous object in the temperate-house at Kew, had not received the distinction of a first-class certificate until last Tuesday, when it was shown by Sir

Trevor Lawrence. It has thick fleshy purplish stems, which at Kew grow to a height of six or eight feet and bear large deep green leaves a foot long and nine inches wide. The flowers, which are developed in winter and remain showy for several weeks, are in a huge terminal corymb, from a foot to eighteen inches across, and of a bright yellow color. At Kew, S. Griesbreghtii is planted out in groups, which make imposing pictures of immense leaves and gigantic heads of flowers at this time. Last year it was grown in pots for the conservatory and formed handsome specimens two feet high. It is also a good plant to use for subtropical effects in summer, and is a first-class garden-plant. It is a native of Mexico and is also called S. grandifolius.

Amygdalus persica magnifica is a new variety of Peach which Mr. J. Veitch has introduced from Japan, and which is certain to become a great favorite. It is quite hardy, and the specimens shown were long shoots clothed with flowers, which had been lifted from the open air at Coombe Wood in the middle of February. The flowers were exactly like those of the doubled-flowered Peach in size and form, but in color they were of the clearest carmine-crimson, bright and beautiful. For a supply of flowers in the early spring, or to force for use in midwinter, or even as a tree or shrub for the conservatory, this new arrival from Japan has a special value. It was shown in company with the snow-white-flowered Prunus Davidiana and the Lilac-like Daphne Genkwa.

Prunus Davidiana has been in flower here since the end of January. Although introduced to France by the Abbé David twenty years ago, this plant was not known in English gardens until Messrs. Veitch showed it in flower a year or two ago, but it has only to be seen now to find universal favor. We have a Japanese garden here, in which a tree of this snow-white Peach is now a beautiful picture, its crowd of erect branches being wands of white fully two feet long. It was in full beauty before the Almond-buds had even moved. The variety called ruora is not nearly so effective. Messrs. J. Veitch & Sons exhibited a beautiful group of bush-plants of the white form this week. We are indebted to China and Japan for many first-rate plants of the Prunus family, but this P. Davidiana, in its elegance and purity, is, I think, the most charming of all.

Clematis Balearica, generally considered to be a form of C. cirrhosa, but much superior to the ordinary garden representative of that species, is a plant of considerable value, as it is as hardy as the hardiest, is evergreen, with leaves suggesting those of Vitis heterophylla, and it grows rampantly in ordinary garden-soil. In addition to all this, it produces its flowers in February, and they are not affected by a few degrees of frost. They are borne three or four together in the axils of the leaves, singly on stalks nearly two inches long, nodding, and colored creamy yellow outside, with spots of dull red inside the petals, which are ovate and an inch long. A mass of it clustering about a tall stout stake is now an attraction among the collection of hardy Clematis at Kew. C. cirrhosa is a native of Minorca; the history of the form called Balearica is unknown to me.

Daphne Mezereum, var. grandiflorum, is much superior to the type as regards the size and color of the flowers, which, in the variety, are nearly an inch in diameter and of a rich crimson-purple color. So far as effect goes, the size is of less importance than the color. I read lately in Garden and Forest that D. Mezereum is now naturalized in some of the states. It is one of those shrubs of which we cannot easily have too much. At Kew it is largely used on account of its early-flowering habit, and this winter it has been exceptionally beautiful. Large beds of the purple form are a conspicuous feature on a large lawn in one part of the garden, and the white variety is almost as effectively employed. During the summer the Daphnes have various species of Lilium as companions.

Sphæralcea abutiloides is worth growing for the greenhouse on account of its axillary racemes of rosy-mauve Malva-like flowers, nearly two inches across, which are developed in February. It was introduced in 1725 from the Bahamas, but had long since disappeared from gardens, until re-introduced to Kew by Baron Eggers a few years ago. Here it is grown along with greenhouse Abutilons and forms a nice little pot-plant two feet high, with silky green leaves. With a little management it can be had in flower at almost any time. S. umbellata, better known as Malva umbellata, is another useful old plant for the greenhouse, which, however, is rarely seen in gardens. A species, said to have been found by Nuttall on the banks of rivulets east of the Walla-Walla, in north-west America, and introduced to Kew in 1863, is not known to be in cultivation here, though its picture represents it as a handsome flowering shrub.

New Orchids.—The following were the most noteworthy Orchids shown at the last meeting of the Royal Horticultural Society:

Lælio-Cattleya Hon. Mrs. Astor. A beautiful hybrid between L. xanthina and C. Gaskelliana. The flowers are of medium size, well formed and colored buff-yellow, with an orange-yellow lip, the front lobe colored magenta-purple, elegantly crisped and wavy. It was exhibited by Messrs. F. Sander & Co. and obtained a first-class certificate.

Lælio-Cattleya Tydea is a hybrid between L. pumila and C. Trianæ. It shows the characters of both parents, is not unlike a form of C. Percivaliana, and its colors are rosy-purple, with a dark crimson labellum. It was shown by Messrs. J. Veitch & Sons and obtained an award of merit.

Pleurothallis Roezlii was shown by Mr. R. J. Measures and obtained a botanical certificate. The equally large-flowered and remarkable P. scapha is now in flower at Kew.

Calanthe Baron Schrœder is a hybrid between C. vestita oculata and C. Regnieri, and superior to both. Two spikes were exhibited from Baron Schrœder's collection, very strong, bearing numerous flowers of large size and of a rose-crimson color, the lip maroon. It obtained a first-class certificate.

Sophronitis grandiflora was represented in a specimen bearing over fifty beautiful scarlet flowers, shown by Sir Trevor Lawrence, who also sent several new plants which were awarded botanical certificates, among them being a pretty little yellow-tailed Masdevallia named picturata. He also showed Bulbophyllum mandibulare, which is remarkable in having purplish flowers nearly two inches across, with a large, fleshy, tongue-like labellum. It was discovered in Borneo by Mr. Burbidge, and has lately been imported by Messrs. F. Sander & Co.

Cymbidium eburneo-Lowianum was shown by Messrs. Veitch, who raised this striking hybrid a year ago. It bore several strong spikes of yellowish rose-tinted flowers. The same exhibitors sent a plant of their beautiful hybrid Phalænopsis F. L. Ames, which I consider the best hybrid in this genus yet raised.

Phalænopsis Youngii is a supposed natural hybrid between P. Aphrodite, var. Dayana, and P. Schilleriana, but bears characters rather suggestive of P. Stuartiana, the flowers having white sepals and petals spotted with brown and tinged with rose, the lip white, barred and spotted with crimson. It received an award of merit.

Cattleya Percivaliana, bearing thirty beautiful flowers, was shown by Messrs. H. Low & Co., who also exhibited fine examples of Phalænopsis Stuartiana and Schilleriana. A plant of the rare Angræcum Chailluanum was also shown in flower.

A Correction.—In my note on Richard Spruce, the botanical collector, I inadvertently stated that Humboldt took an interest in him. This was obviously erroneous. I ought to have said Bentham, who took considerable interest in Spruce's collections, and undertook to name and distribute them as they arrived in England. There is a very interesting obituary notice of Spruce from the pen of Mr. A. R. Wallace in *Nature* of January 31st.

London. *W. Watson.*

Berlin Letter.

ON the summit of the Kreuzberg, at Berlin, within the boundaries of the new Victoria Park, are two large Hackberry-trees of the American species Celtis occidentalis, which date from the beginning of the century, and are grouped with widely spreading Acacias of like age. In the course of years the roots of the Celtis-trees had been laid bare to a considerable extent by the action of high winds blowing over the hill-top. They have been lately carefully covered by spreading garden-mould over them. As the species is rare in Germany, and as these two specimens are in a way historic, having been planted by Lenné at the dedication of a colossal statue which commemorates the delivery of the Fatherland from the domination of Napoleon, it seemed to me that they should be rescued from impending destruction. One species of Celtis, C. australis, which inhabits the south of Europe, is called, in German, Zürgel. Misled by similarity of sound, the Berlin newspapers reported that Zirbel nuts (Pinus Cembra) had ripened in large quantities on the Kreuzberg, and that the children ate them with avidity. Of course, this mountain conifer is not to be found in Berlin. The fact is that the boys of Prussia are quite indifferent to the distinction between the Urticaceæ and Coniferæ, and, being a trifle Spartan in their appetites, had amused themselves by gathering a fruit that had no connection whatever with the Pine-nuts, and were no other than the little berries of the Hackberry, the flesh of which is so thin that it is scarcely counted among edible fruits.

The cones of Pinus Jeffreyi matured for the first time last autumn, in the vicinity of Berlin, on a tree at Schaffenberg, about twenty-five feet in height, which had produced nothing but bright orange-colored male flowers for several years previously. The cone is quite large and might be mistaken for that of Pinus Canariensis, which, like it, is characterized by leaves in clusters of threes. P. Jeffreyi grows here with great vigor and promises to be the best of conifers both in elegance of appearance and in the rich green color of its foliage. It has proved perfectly hardy, while Pinus Sabiniana succumbed to the unusual severity of the last winter, and Pinus Coulteri, although it endures the climate, develops but slowly.

The Big Trees of California, which had been apparently acclimated in the vicinity of Berlin, were also unable to resist the extreme severity of last winter. There were specimens, thirty to forty feet high, which were in a very flourishing condition, but they have met with the same fate which befell the Cedars of Lebanon a generation or so ago. If there are any Sequoias still living, it is due to the fact that the snow protected some that were very young, or because a few of large growth were specially protected. One specimen, however, has survived without special care, and did not lose a leaf. The people of Berlin are reluctant to abandon the cultivation of a tree of such beauty and interest, and as a matter of fact such excessively cold weather occurs but two or three times in a century, and therefore the trees will be planted again. Nevertheless, it seems to be demonstrated that in Brandenberg the Sequoia can never really become a big tree. Young saplings of Redwood, although they seem more delicate, withstood the winter at Scharfenberg, but they were protected by a covering of dead leaves.

Picea Omorica, of Servia, is still rare here, and no cultivated trees, so far as I know, have attained anything like the proportions which they reach in their natural home. However, with that tendency to variability which conifers always show in cultivated seedlings, some of these have developed into remarkable forms, which depart widely from the type. In the palace garden at Potsdam I recently observed one of these young Spruces with such drooping branches that it promised to assume a shape quite singular in this race generally characterized by upright growth.

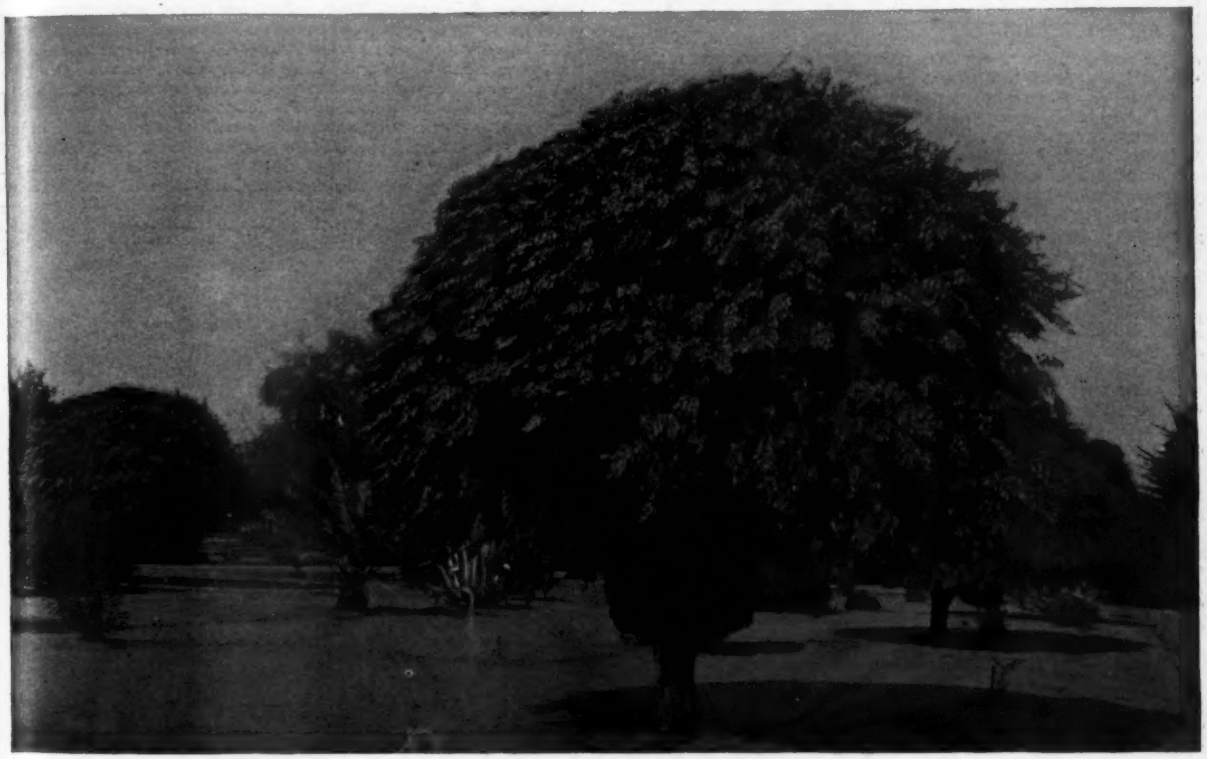

Fig. 20.—An Umbrella Tree, Melia Azedarach, var. umbraculifera, in Riverside, California.—See page 93.

This unlooked-for novelty is in the charge of Mr. Koopman, of the Gärtner Lehranstalt.

There is at Scharfenberg a magnificent specimen of Celastrus articulatus, planted ten years ago, which came there named Celastrus paniculatus. This Japanese creeper has grown wonderfully, having reached an immense height and entirely covered a tower which flanks the building. The plant flowers luxuriantly, but the flowers are all feminine, so that its most ornamental feature, the rich orange tint of its fruit, is wanting. Up to the present time all efforts to obtain a male plant have been unsuccessful. Are plants of both sexes to be had in America? [Yes, in great numbers.—Ed.]

Berlin. *C. Bollé.*

Cultural Department.

Annual Flowers from Seed.—IV.

PANSIES are mostly treated as annuals in gardens, but they are so generally grown by commercial florists that owners of gardens look to them for their annual spring supplies. They are, in this climate, best sown in August or September and wintered over in a cold frame. There is, however, much satisfaction in growing one's own seedlings, even if delayed as late as this time, provided a rich cool piece of ground can be used, moderately shaded, as on the north of a picket-fence. The flowers will be small in summer, which, however, is a venial fault, for the Pansy in late years has been "improved" too much in the matter of size. The greatest development has been reached in the Giant Trimardeau, whose immense thin petals and washy colors seem to make these among the least pleasing of garden flowers. One cannot go amiss among the other strains offered by the florists, although most of them need careful weeding out to secure only plants with the pure deep colors which have always endeared the Pansy to flower lovers. But for sweet flowers, with perfect purity of coloring, there should be tried the tufted Pansies, or hybrid Violas, names by which they are known in England, or as now offered by our seedsmen, Sweet-scented Pansies. These charming plants are crosses between the modern Pansies and some species of alpine Violas. As plants they vary, but are mostly of a somewhat tufted habit, with rather thinner stems than Pansies, and they usually produce many basal, or, rather, root breaks, from which they rapidly increase. The flowers are generally rather small, in good forms scarcely two inches broad, often self-colored, or possibly with a delicate ground color and markings or shadings of another color. Usually they are delightfully fragrant, with a fresh delicate Viola odor. They flower very freely at all times if not allowed to become dry at the roots. The plants are more hardy than Pansies, though in this climate care must be taken that they are not thrown out of the ground during the frequent thaws occurring in our winters.

The principal objection to Poppies which occurs to me is the fact that in a small garden one can only devote an absurdly small space to flowers of such beauty. The typical scarlet kinds must be grown with caution, as they are eye-filling to a degree which blinds one to the other occupants of the borders, but the white-eyed Shirley Poppies are the daintiest poems in colors, and should be planted in every garden. They are fragile to a degree, and the plants are short-lived, but their glories are such as will linger in the memory long after they have departed from the borders. It is not always the friends who are longest in evidence from whom we gain the most pleasure. The double Poppies, while not so airy, are yet handsome flowers and more enduring. But the most satisfactory variety in all respects for a small garden is the Iceland Poppy in its various shades of white, yellow and deep reddish-orange. These charming little plants make dense low clumps of foliage; they are easily grown from seed, which may be sown now, as one sows other Poppies, by mixing the seed with soil and scattering it broadcast. The plants will flower this season, and, being perfectly hardy, will, next year, be in fine condition to throw up numerous flower-stalks as soon as the snow is fairly melted. They continue flowering for a long time if the seeds are not allowed to form. It is usually necessary to thin out the young plants so as to allow room for the proper development of a required number.

It is not customary to class Roses among annuals, but we have now a new race of the Polyantha or many-flowered Roses, which will flower in ninety days after seed-sowing. The seed are the size of ordinary Rose-seed and germinate readily at a moderate temperature. The young plants grow vigorously, and may soon be transplanted into the border. In the course of the season they make thrifty bushes one to two feet high, and usually with reddish stems and bright foliage. The numerous flowers are sometimes single, and in some cases are dainty little perfectly double ones. The colors are various tints of red, shading to pure white. They give successive crops during the season, and the plants, which are hardy and perennial, in the late year are attractive with their crop of bright scarlet hips.

Salvia splendens is a universally appreciated flower of great value in the garden, and is easily grown from spring-planted seeds, which germinate readily and strongly. There have been several varieties of this Salvia offered, but none have proved better than the type. The blue Salvia, S. patens, is a charming flower of a most beautiful hue, but the plant is a straggling grower, and is only to be recommended to those who wish to grow the more uncommon flowers having some especial value.

It requires but a glance at any current seed-catalogue to assure one that Sweet Peas are at present the most popular annuals in cultivation. New varieties, always named, are being added to the list each year, and while there is a tendency to crowd the list with novelties, it may be said that among the newer flowers of Eckford and other specialists there are many distinct and beautiful kinds which are a real improvement in color and size over the old favorites. The cultivation of Sweet Peas is very simple, provided the sowing is made as early as the ground can be turned in the spring, though it is better to have the soil prepared by thorough deep working and manuring during the previous fall. Trenches six inches deep should be made, and the seed sown thinly and covered with half an inch to one inch of soil. As the plants gain in height the soil may be hoed up to the plants until the ridge is nearly filled. They need a supply of moisture, and it is always well to leave a depression of the ground over the roots. Sweet Peas are divided into two general classes—the white-seeded and the black-seeded. The latter have feebler germinating powers, and care should be taken in planting to cover them lightly, only enough to envelop them in a close moist covering of light earth. Sweet Peas are readily moved when young, and if the garden is wet and cold progress may be made by planting the seed singly in thumb-pots, which should be plunged in light earth in a warm sheltered spot. Here the seeds will germinate quickly and the roots run through the drainage-holes. When the permanent quarters are ready the plants may be lifted carefully and transplanted with entire safety after breaking off the pots. As to varieties, it will serve to indicate only a few of the most desirable colors. In white Peas, Emily Henderson is valuable for purity of color and freedom of flower. These are also of the largest size, of good shape and substance. I have seen stems of these bearing five and six flowers. This is a white-seeded variety. Of the black-seeded sorts bearing white flowers, Mrs. Sankey seems the best variety. For pink Peas, Blanche Ferry leaves little to be desired. Cardinal is the brightest scarlet, and is a large flower. A good yellow Pea is desirable, and in Mrs. Eckford is promised a deeper color than before secured. This I have not yet grown. The darker Peas I know nothing about, as I do not fancy this class, and have not given them a trial.

Elizabeth, N. J. *J. N. Gerard.*

Alpine Poppies.

THE Iceland Poppy is now familiar to almost every one, and during recent years our gardens have been enriched with varieties which are double or novel in their color. Our Swiss Poppy seems quite as interesting, and it is not only one of the best among our white alpine flowers, but one of the most freely flowering of all plants. It forms a dense turf-like mass of fine-cut bluish green and generally glabrous leaves. The stems in the Alps never exceed five inches in height, but the flowers are large, the four petals being ample, crimped and of a beautiful white with a silky lustre. The numerous colored anthers at the centre make an interesting contrast with the glittering white of the corolla. The flowers are very numerous, and I once counted about eighty on a single plant on our rockery here. The flowers appear from May to the month of October. In its native mountains there are often found variations from the type in form and color. One of these, Papaver Rhœticum, has petals of orange-yellow, with villous foliage, and the divisions of the leaves are broader. It grows only in the Engadine Alps. P. Burseri is a white form of this species, which is found in the Tyrol. P. Pirenaicum is another nearly allied species with leaves, stems and calyx very villous and yellow flowers. All these plants are polymorphic, and have given many horticultural varieties with red, pink, pale rose, violet, whitish and yellowish tints. These Poppies of the Alps

and Pyrenees are very easy to cultivate, and they grow quickly if sown in spring. They will flower the same year, and can be planted either in the rockery or the herbaceous border. They delight in a light sandy soil and a half-shaded situation. When planted in rich soil they lose their character and vary in form, color and shape.

Some eight years ago I received from the late John Ball a valuable Poppy which grows in the Atlas Mountains among the rocks just as ours do in the Alps. It is the African form of P. rupifragum, and was described by Ball as P. Atlanticum. I do not know of another plant which blooms more richly and abundantly. It is a brick-red and very delicate in form, borne on long graceful stems, and it flowers from May until the heavy frosts of November and December. It is one of the choice plants for rockeries and wild gardens.

Geneva, Switzerland. *H. Correvon.*

New and Rare Plants at Baden-Baden.

PAPAVER GLAUCUM, introduced by me from Asia Minor, has rapidly found favor with the public; it is a hardy annual, with large and numerous flowers of deep dazzling red. It can be had in flower from April to November, and when potted will make the greenhouse gay for a month longer.

Verbascum pannosum, from Bulgaria, V. Wiedemannianum and V. xanthophœniceum are also desirable plants; the first is a giant species, much like V. Olympicum, but the spikes are thicker and denser, and the yellow flowers much bigger. During the one or two years before it flowers it is an ornament of the garden on account of its large tufts of woolly leaves, which are nearly paper-white. The last-named two are stronger growers and have finer flowers than V. phœniceum. They should be in groups close together.

Delphinium Armeniacum is an annual in the shape of D. Ajacis, but the spikes are denser and the color of the flowers is a strikingly brilliant blue.

This year Artedia squamata, a beautiful umbelliferous plant from Asia Minor, will be sent out. It resembles in shape Nigella Damascena; the leaves are finely cut and the creamy white flowers two inches across, which appear in great abundance, are sure to find admirers. The outer circle of florets are broad-shaped, and thus the flower seems to be substantial and elegant, too.

Silene swertiæfolia is another novelty to come out this season. It flowers from July onward to October, and the much-divided flower-stalks show numerous satiny white flowers, beautifully shaped.

Kniphofia longicollis seems to be another novelty of promise. Many plants of it are flowering freely just now, but I cannot judge as yet whether this is its regular time, or whether this late blooming is caused by the late dry season. The spikes are elegant, and the flowers vary from sulphur to bright yellow.

For American summers Gazania nivea will be a welcome plant; it must be wintered in a greenhouse, but will make a splendid ornament in the right place. The flowers are large, pure white, with a yellow disk. There are numerous novelties in bulbous plants, but these I wish to see again before judging them definitely.

Baden-Baden. *Max Leichtlin.*

Chrysanthemums.

IT is now time for the distribution of new Chrysanthemums, and these require to be made the most of from now until planting-time. Many of the plants will come with cuttings on them large enough to be taken off, and this may be done after a few days when the plants have recovered a little. To grow specimen plants we take out the tips only, which induces a good bushy growth above the ground-level. If the plants are to be grown for specimen blooms we cut low and box the plants in good rich loam, hoping to get a plentiful growth of suckers, as these make the very best cuttings. Varieties which do not sucker freely may be cut to leaf-eyes, with the prospect of getting fair plants by the 1st of June.

My stock plants for blooms are frozen now, but early in March they will be moved into slightly warmer quarters, and started growing slowly, with every prospect of an abundant supply of cuttings before the 1st of May. When this is possible, a period of rest should be given stock plants, thus adding new life and vigor. The best time to put in cuttings depends upon whether the flowers are intended for exhibition or for home-decoration. For exhibition, most growers agree that about the 10th of May is the best time to start the cuttings, and for planting, about the 20th of June. The quantity of cuttings will depend upon the space to be occupied, and ten inches apart is not too much to allow. For general decorative purposes later and closer planting may be practiced, and very fair blooms may be grown if the planting is done as late as the 20th of July. It sometimes happens, as in my case, that the date of planting has to be reckoned by the amount of head-room that can be allowed. For early planting at least six feet of head-room will be needed, and for later planting correspondingly less. With the exception of Ivory, W. H. Lincoln, Cullingfordii, Ada Spaulding, and probably a few others, which require a longer season to mature, it is the general opinion that for private as well as for commercial purposes medium early or even late planting is best. This admits of closer planting, and, what is still more important, fewer abnormally early crowns are developed, and these seldom produce good flowers. With the expert who fully understands the proper timing and taking of the buds of the varieties he grows, it is different. When he knows a bud is too early he has the alternative of taking a terminal, which is always done.

There is an impression, often expressed lately, that there are too many novelties. Not many years ago a friend of mine, an amateur grower, cultivated all American novelties, and some European ones as well. But the task is too great for him now, and he is not able even to keep any record of them. And yet it would be an easy matter to grow all the really good novelties we get, and all the remarkable varieties of a season could be counted on one's fingers. There is sufficient material in the National Chrysanthemum Society of America for the formation of a proper tribunal before which all new varieties should go. As it is, American varieties are pre-eminent the world over. While our plan of cultivation is good, and on the whole best suited to our environment, our English friends excel us in the cultivation of many Chrysanthemums, and this is no less true of varieties of American origin. I am not aware that the American bench system has been practiced to any extent in England, but judging by the comparison between bench and pot cultivation in this country, I should think they would succeed even better than they now do if this method were adopted. Changes come slowly.

Wellesley, Mass. *T. D. Hatfield.*

Maranta Lageriana.—This plant has been in the market for two or three years, and promises to be a useful addition to this beautiful family. Its growth is moderate, and its nearly ovate leaves are bronzy green and reddish beneath. It has a compact habit, and soon makes a pretty little specimen. So far it has been tried only for indoor purposes, and possibly it will not prove as enduring as Calathea zebrina and one or two other species that are often used for outdoor decoration in summer.

Adiantum cuneatum variegatum.—Variegated seedlings of Adiantum cuneatum are not uncommon, but they usually have little value. This one, which has been considered good enough to have a name of its own, is, perhaps, the best of the kind yet sent out, though, in my estimation, none of them are as beautiful as the type. In A. cuneatum variegatum the pinnæ are splashed and marked with white, and the characteristic is so well fixed that it comes true from seed, and is thus readily propagated. Variations from normal form or color always find some market as curiosities, and as variegated Ferns are comparatively few, there may be an opening for this one, though, where space is limited, it may well be omitted in favor of some of the other forms of A. cuneatum, of which many have appeared. Some of these are crested, some dwarf, some have much-divided pinnæ, after the manner of A. fissum, and one seedling has spirally contorted fronds.

Holmesburg, Pa. *W. H. Taplin.*

Dendrobium Phalænopsis Schrœderianum.—I have spoken of this valuable new plant in vol. vi., p. 467, of GARDEN AND FOREST, but I am prompted to say more of it now that the plants are in full bloom. This is not the usual period of flowering. Established plants generally flower in the dull autumn months and are very useful then, but those now in bloom were obtained last June as dried imported plants, and consequently started late. They all grew well, and every plant is now showing flowers. There is a wide range of color in the plants already flowered, some being dark and others pure white, with rose shadings over the petals and lip. The paler forms are certainly the more pleasing and seem to predominate. When this Dendrobium becomes fully established and makes a growth equal to that of the imported plants, we shall be surprised at the number of flowers to each spray. Full exposure to the sun in winter is necessary to mature the growth, especially where this has been made late, and also a position in the

warmest house, with a minimum of sixty degrees at night. It is essentially a warm-house plant. Even when in bloom it does not do to move the plants to a cooler temperature, as the flowers soon spot and quickly decay from damp. Another point worth noting is that a very small portion of potting material is sufficient about the roots, at least until the plants become well established. We pot them in shallow pans with holes in the sides, and suspend them close to the roof glass. Thrips and red spider are very partial to the young shoots, but in the growing season frequent spraying will keep these pests in check and benefit the plants also.

South Lancaster, Mass. *E. O. O.*

Peas.—Just as soon as the soil warms a little, a sowing of Peas should be made. The wrinkled kinds are always liable to be chilled during germination, but their superior table qualities are very much in their favor. American Wonder is the earliest, and for private, and especially suburban, gardens, is very much to be commended, since it can be planted as closely as two feet, and needs no brushing. The Chelsea, another dwarf early wrinkled variety, has proved a close competitor, being about two days behind American Wonder. Although the pods are not quite so large, it is a heavier cropper, and, apparently, is hardier. Alaska is a blue seed early Pea, growing three feet high, and is a trifle superior in table qualities to the O'Rourke type. It ripens very evenly, and, although cropping heavily, does not give more than two pickings. After the earliest brush varieties we sow only wrinkled kinds, quality being an essential always. Alpha is one of the best early wrinkled sorts, and follows closely in succession. This variety grows to a height of three feet. Admiral, which reaches a foot higher, is a very heavy and continuous cropper, and succeeds Alpha. Heroine, three and a half feet tall, is the next in succession, and is probably the largest-podded and the best table variety grown. It crops for a long time, but not heavily at any time. G. F. Wilson, of the same height, and coming into bearing at the same time, was one of the best Peas grown here last year. The pods are not extra-large, but the yield is heavy and the flavor is superior. Telephone and Champion of England ripen in the order named.

Worcester, Mass. *H.*

Correspondence.

The Quality of Modern Process Maple-sugar.

To the Editor of Garden and Forest:

Sir,—In Garden and Forest of May 3d, 1893, attention is drawn to the fact that much of the maple-sugar being made now is over-refined at the expense of its peculiar but agreeable flavor.

Born and reared within the shadow of the New England Sugar-maple, I am familiar with the orchard and camp and the delicious maple-sugar as produced therein fifteen or twenty years ago. Times have changed; the old open kettle has been supplanted by the modern evaporator and clarifying process, so that the sugar of to-day is as bleached out as the most fastidious could desire. It is evident, also, that with this new process the sugar has lost its savor. This may be demonstrated in several ways. Those familiar with the maple syrup or sugar of a few years ago were accustomed to a flavor peculiar to the Maple only, so that both the syrup and the sugar were highly relished and sought after. To-day, the so-called best syrup is thin and white, and the characteristic maple flavor is hardly perceptible; the quality is lacking, as based on previous standards, which, to be sure, may be inferior ones. However, for one, I agree with your correspondent, F. E. C., when he says, "In the case of the maple, this flavor is good; it is what has given maple-sugar its value over cane-sugar." It does seem singular that the market should prefer the sugar on the basis of color rather than quality.

In 1892 I purchased five gallons of maple-syrup of an Indiana sugar-maker. It was made in the open kettle, and every person who tasted any of the syrup made from it considered it unusually fine in flavor and quality. It was of good color, heavy, and after being placed in fruit-jars a mass of crystals accumulated on the sides of the jars. During the following season my friend purchased a modern evaporator, and started in with a new up-to-date equipment. Later he wrote to me that he was making perfect syrup, so I ordered five gallons of the 1893 crop. Upon its receipt I found a thin, light-colored syrup, decidedly lacking in flavor in comparison with the choice product of the year before. So great was my disappointment in its quality that I found little pleasure in its use, lacking as it did the distinctive qualities of maple-syrup. Having some of the 1892 crop, a comparison was made in the station laboratory, which I herewith give:

	1892.	1893.
Specific gravity,	1.366 per cent.	1.302 per cent.
Polarization direct,	57.6 " "	57 " "
Polarization after inversion,	22.2 " "	20.2 " "
Sucrose,	60 " "	58 " "

The 1892 lot was viscid, that for 1893 was not, neither were crystals noticeable on the vessel containing the latter. The 1892 crop deposited malate of lime in fruit-jars, after standing, while the 1893 crop did not. Both were standard syrups. The flavor had been materially diminished by the more modern method of treatment, and in this flavor lies the real delicacy of maple syrup or sugar to many.

Just what the source of this flavor is, I cannot say. In Bulletin 13, Division of Chemistry, United States Department of Agriculture, on "Foods and Food Adulterants," Professor H. A. Huston says: "The Price of maple-sugar, as is well known, is out of all proportion to the saccharine matter which it contains, and is due to its peculiar and pleasant taste, derived presumably from some ethereal matter exuded with the sap. The nature of this substance has not, to my knowledge, been definitely determined. It is not wholly volatile, since it remains in the sugar and molasses after they have been kept for a long time at a high temperature during the process of concentration. Nevertheless, a distinctly agreeable odor marks the process of maple-sugar evaporation, as every one can attest who has visited the primitive sugar factories which are operated in the maple-sugar industry."

In a visit to the cane-sugar plantations of Louisiana in the fall of 1892, I noticed that the open-pan molasses was much superior to the molasses from the centrifugal, both in flavor and quality. Dr. Stubbs, in the Government report above referred to, says: "Three kinds of molasses made from sugar-cane are sold on the New Orleans market. The first of these is the open-kettle sugar molasses, usually of fine color and flavor and rich in sugar. The second and rapidly increasing kind is centrifugal molasses. This product is much inferior in quality to the open-kettle molasses."

It is, therefore, evident that, while the standard of purity is not reduced below a reasonable degree, the subtile and indefinable flavor of both maple and cane-sugar syrups is injured by the improved process of manufacture, so that they are both inferior in this regard to the open-kettle product. A former student of this university last spring sent me a jug of open-kettle maple-syrup of a delicate flavor, which it would seem difficult to excel, and yet when he sent the syrup he felt called upon to apologize for the fact that it was made in the old-fashioned way. Are light-colored, flavorless sugars and syrups preferred because they are fashionable, or is our sense of taste becoming more refined? And yet, as F. E. C. says: "If sugar is wanted that is simply sweet, we can get it much cheaper from cane or beets."

Agricultural Experiment Station, Indiana. *C. S. Plumb.*

Apple-scab in Canada.

To the Editor of Garden and Forest:

Sir,—Fifteen or twenty years ago the apples grown in the vicinity of Montreal were widely known for their fine appearance and quality, and always commanded a little better price than fruit grown elsewhere. In recent years the enormous quantities of apples shipped to Montreal from Ontario and the state of New York have greatly reduced the prices of the locally grown apples, although when of good quality the home fruit is still preferred. The Fameuse, or Snow, apple has been the favorite both for shipment and home consumption.

Competion, however, has not lately been the chief trouble with fruit-growing about Montreal. A portion of the fruit has always been affected by the fungus known among orchardists as the "scab" or "spot," and by botanists as Fusicladium dendriticum, but the percentage of injured fruit rarely ran as high as fifty per cent., and was often quite small. Within a few years the fungus has become so much more abundant as to discourage apple-growers here, as it has in so many other places. Sometimes not five per cent. of the apples can be called first-class, where once there were rarely more than ten per cent. to be placed among the second and third class. The affected leaves become sickly and starved, and the trees lose much of their vigor.

After waiting for some years in the vain hope that the disease would become less harmful, the Canadian apple-growers now realize that their only hope lies in efficient treatment with fungicides. Many growers about Montreal have been using

remedies during the past season or two, but, so far, with rather unsatisfactory results. In some instances an improvement has been noted, in others but little advantage has resulted in the quality of fruit, although the foliage has been more vigorous. These seeming failures should not discourage the growers. It will require both patience and experience to discover the best fungicide and to apply it most effectively. Those who have read the careful experiments conducted at the Cornell Experiment Station by Professor Lodeman must feel encouraged at the prospects of suppressing this pest.

The fruit of certain varieties of Apples seems to be affected by the scab but little, or not at all, and for this reason some orchardists in the Province of Quebec have been selecting these varieties for recent planting. Such apples as Fameuse and St. Lawrence are among those worst afflicted; Walbridge and Wealthy are less so; Red Astrachan and Pewaukee keep comparatively clear and salable. The fruit of Tetofsky, Charlottenthaler (Yellow Transparent), Duchess, Alexander and Golden Russet remains clear, but in some cases the foliage is more or less affected. Pears, such as Flemish Beauty, are also liable to serious damage by the scab. It is probably not safe to plant any variety with the idea that it will always be exempt from injury, and certainly where the foliage is affected the fungicides should be applied. As most of the older orchards about Montreal are composed of the favorite Fameuse, one of the kinds most affected, the injuries by the fungus have caused greater loss and discouragement here than in some other districts where other varieties predominate.

Arnold Arboretum. *J. G. Jack.*

Recent Publications.

Japanese Plums in the United States.

In 1870 a Mr. Hough, of Vacaville, California, secured through Mr. Bridges, the United States Consul in Japan, several Plum-trees from that country, and the trees, having passed into the possession of the late John Kelsey, of Berkeley, first ripened fruit in 1876. This variety of Plum, which was afterward named for Mr. Kelsey, was soon found by California growers to be very valuable for general cultivation, and it was largely propagated some ten years ago. Since then Mr. Luther Burbank and others have imported several varieties from Japan, and, contrary to general expectation, a considerable portion of them have been found adapted to our northern states. It is not to be wondered at, therefore, that during the past four or five years these plums have attracted more attention than any other fruit of recent introduction. The best of them will compare well in quality with our own plums, and while many of them are inferior in this respect to our best fruit of the Domestica type, they have, among other desirable characteristics, vigor and productiveness, freedom from disease, great beauty and long-keeping qualities.

Bulletin 62 of the Cornell University Experiment Station is devoted to the *Japanese Plums in North America*, and Professor Bailey, who has prepared it, has made a most interesting monograph, in which he discusses the origin and botanical position of the plants, and then, after attempting a provisional classification of them, he describes the varieties which are already known here. We have only space for a brief summary of this paper, and recommend all those who are interested in these new fruits to secure the bulletin as the most complete statement yet published of what is absolutely known, and what may reasonably be expected of these new plums.

The so-called Japanese Plum belongs to the species Prunus triflora, which is unknown in a wild state, but which is supposed to be a native of China. About thirty varieties have been imported and disseminated through different sections of the United States. The fruit is distinguished from that of the common Domestica type by being generally more pointed or heart-shaped; it has a deep suture upon one side, a pit which is generally less winged, and flesh which keeps longer after it is ripe. The trees differ botanically from our ordinary cultivated Plums in bearing, as a rule, three or four winter buds at a joint, instead of one, in light-colored rough bark; the flowers are usually in twos or threes; the leaves long-obovate or elliptical and finely serrate. An important fact is that they are quite closely allied in their botanical characters to some types of our native Plums. While importations from Japan have been freely made, there are probably many more good varieties in that country which have not yet reached America, and we must look for permanent progress in the future mainly to seedlings raised in America. The imported plants differ among themselves greatly in hardiness —some of them, like the Kelsey, being adapted only to states south of Virginia and the warm parts of the Pacific coast, while others are fully hardy in parts of Connecticut, Ontario, New York and Iowa. Those known to be hardy in the Plum regions of New York are Burbank, Abundance, Willard, Ogon, Satsuma, Chabot, Yosebe and Berger, and others still give promise of being quite as hardy. The period during which the various kinds ripen extends over a long season, running from the middle of July to the middle of September in New York. The same variety does not always appear to ripen at the same period in different years. This is especially true of the Kelsey, which sometimes varies through a period of three months. Of the market varieties tested in New York, Willard is the earliest, followed by Ogon, then Abundance and Berckmans, with Burbank still later. Kelsey is generally latest of all. Most of these plums keep for several days, and some of them even for two weeks, after they are ripe, Satsuma being one of the best keepers, so far as observed in the north. The greater portion of the varieties are red, with deep yellow flesh, while the Satsuma and a few of the less-known varieties have deep red flesh. Four well-known varieties are yellow, and eight of them are free-stones. Kelsey is recommended for the south; the best of the others are Abundance, Burbank, Willard, Kerr, Berckmans, Maru, Red Nagate, Chabot, Satsuma, and, perhaps, Ogon. One weakness of many of the Japanese Plums is that they blossom too early, and others are liable to a fruit-rot fungus. They are not, however, so subject to the black-knot and leaf-blight, nor are they so subject to injury from curculio as other Plums.

It is true that these Plums are better in fruit than our own native Plums, but we may depend that they will develop weak points somewhere in comparison with our little improved natives, and, therefore, it is important that those who have been endeavoring to improve our native species should not now relax their efforts and accept these Japanese sorts in their stead. We should welcome every new type which adds diversity to the material out of which we hope to develop fruits for every part of our country and for all uses. Our native species have hardly been rescued from the woods, while the Japanese and European types have been cultivated for centuries. These latter, too, have each sprung from single species, while our native stock offers half a dozen species to select from, so that on the whole our native species are the most promising as a foundation stock, at least; and while the infusion of this Japanese blood may help us, it is, nevertheless, true that the best Plums of the future in this country will probably be those which are borne on our native stock, improved by crossing and selection.

Notes.

Although there are more lemons in stock than are needed for present demands, and they are very cheap, prices are not likely to improve, inasmuch as 193,000 boxes and more are now in transit from Mediterranean ports. As a rule, three-fourths of the importations of lemons into this country come to this port.

In a recent number of the *Bulletin of the Torrey Botanical Club*, Mr. A. A. Heller notes that the European Iris Germanica is well established in a grassy meadow on the banks of the north fork of the Shenandoah River, in Rockingham County, Virginia, and has been flourishing there for a number of years at a distance of about a quarter of a mile from the nearest house.

Mr. V. M. Spalding, professor of botany in the University of Michigan, has recently published an *Introduction to Botany*, a

small octavo volume, intended to supplement the larger works now in use, and especially adapted for high-school instruction. Such a book is particularly needed in the states whence Professor Spalding's University draws its students, as a knowledge of botany is now required in the entrance examinations for its Literary Department.

Rods of thin metal are now made in Germany to be used as substitutes for sticks in supporting plants grown in pots. They branch out below into several slender feet, so that they are easily fixed in an erect position; and as they are hollow throughout it is said that water may more advantageously be applied by pouring it into their tops than by applying it directly to the surface of the soil.

The leading article in a recent issue of *Gartenflora* is an appreciative description of Mr. H. H. Hunnewell's fine place at Wellesley, Massachusetts, written by the editor, Dr. Wittmack, who was one of the commissioners to our World's Fair, in the Department of Horticulture. It is accompanied by a large folding print showing the Italian garden, a picture of which was given in GARDEN AND FOREST, vol. ii., p. 98.

A joint meeting of the American Forestry Association, together with representatives of several other bodies interested in forestry, begins its sessions in Albany as we go to press. The meeting will continue through Tuesday and Wednesday, and on Thursday the members have been invited to visit the Beaver River Forest, on the Adirondack and St. Lawrence Railroad, where an opportunity will be afforded of seeing the Black Spruce of that region and observing some practical forestry operations.

Mr. J. N. May writes to the *American Florist* that as the days are growing longer and the Roses are making active growth, and show the need of more food, a thin mulch of ground bone, spread thinly over the surface of the soil at the rate of twenty-five or thirty pounds to a house 100 feet long and twenty feet wide, will be found more satisfactory than liquid-manure. Half an inch of well-decayed manure should be placed over the bone, and every time the plants are watered a limited amount of food-material will be carried to the roots, and they can assimilate it more readily than if they received it in stronger solutions at rarer intervals.

The literature of spraying plants against insects and fungi is so voluminous that fruit-growers and farmers ought to welcome the Spray Calendar, which has just been issued by Mr. E. G. Lodeman, of Cornell University. All the actual information needed is here printed on one side of a sheet fifteen inches long and ten inches wide, which can be tacked up anywhere for reference. In half a dozen columns will be found concise directions for preparing each special application which is needed for the various diseases and various insects which injure our different fruits and vegetables, together with the proper time and manner of treatment, and the number of sprayings needed in each case. Altogether, this compact and carefully compiled calendar is good enough to be called an inspiration, and Mr. Lodeman deserves the gratitude due to a public benefactor.

The Experiment Station at Burlington, Vermont, has issued a leaflet which contains the reproduction from a photograph of part of a Potato-field, which shows in a graphic way the good results of Bordeaux mixture as a preventive of blight. Besides the picture, the leaflet contains some instructive figures which show the actual gains per acre from spraying Potatoes during the last two years, in checking the blight and rot. This leaflet was originally printed for distribution at the meetings of the State Board of Agriculture, and a bulletin has been prepared in which the results are given in still greater detail. This bulletin also gives the description, with an illustration, of a spray-cart which has been found useful in applying the Paris green and Bordeaux mixture. Any one sufficiently interested in this matter to send his address to the experiment station will be furnished with a copy of the bulletin.

A correspondent from Salem, New Jersey, writes that he has Winter Aconite in bloom in the open border on the 1st of March, and wishes to know if this is not unusually early. Perhaps the plant is a little ahead of time in flowering, but it usually opens with the Crocus, or earlier, and it often flowers as soon as the snow melts away. Some five years ago a Philadelphia correspondent sent us some flowers of this plant, Eranthis hyemalis, which he had gathered in Bartram's Garden, where it had been growing for fifty years at least. It has become naturalized, and is now the first plant there to bloom in spring. It always thrives well in groups under trees, and its bright yellow blossoms, an inch across, are very attractive in the early season. It is a dwarf perennial with bright green leaves, and not more than two or three inches high. It has been a favorite in the gardens of western Europe, of which it is a native, for three centuries, and it ought to be more commonly cultivated in this country.

In spite of the prevailing hard times, neither flower-growers nor flower-dealers in this vicinity are making serious complaints. The market does not seem to be overstocked with the ordinary varieties, and while not as high as they have sometimes been, good flowers sell at fair prices for the Lenten season. In addition to the roses generally seen, some good blooms of the old Merveille de Lyon are offered at fifty cents each. Cape jessamines are becoming favorite flowers for boutonnières, and sell for thirty-five cents each, and a dozen short sprays of Jasminum grandiflorum bring fifty cents. Among flowering plants not often sold for decorative purposes are the so-called Bottle-brush, Metrosideros robusta, its striking clusters of long crimson stamens closely set along the stems, and its thick leaves making a showy specimen. Messrs. Siebrecht & Wadley are also making something of a specialty of Boronia heterophylla, and its abundant clusters of drooping carmine flowers among its slender and graceful leaves on plants two to three feet high are very attractive. B. megastigma, although not so showy, has a delicious odor, and plants in flower ought to sell well. Flowering plants of Acacia dealbata and Genista, and well-berried specimens of Ardisia are still abundant.

In a paper on Chrysanthemums which appears in the last issue of the journal of the Royal Horticultural Society of Great Britain, Mr. Richard Parker, in speaking of the marvelous improvement in recent varieties, observes that it is not in size or formation of blooms or in richness of color that the most conspicuous advances have been made, but in the fact that superiority in these points have been gained in connection with a much dwarfer size, a point which is not always appreciated. For example, blooms of Viviand Morel or William Tricker can be exhibited from plants which are often little more than three feet high, while that good old variety, Madame C. Audiguier, not uncommonly ran up to a height of ten feet before a good exhibition bloom could be obtained. Among the white Japanese varieties, the tall-growing Fair Maid of Guernsey has made room for such admirable dwarf varieties as Avalanche and Stanstead White, while among the yellows, though Thunberg bears a lovely flower, yet for general usefulness, combined with exhibition qualities, it is quite inferior to W. H. Lincoln, Sunflower and others, whose habit is much more useful for decorative purposes. These dwarfer varieties, too, enable a greater number of growers—that is, those with limited greenhouse accommodation—to include some of the best varieties in restricted collections, so that amateurs and small growers are able to have as pleasing a display, even if it is not so large, as those made by persons who possess abundant greenhouse space.

At the Illinois State Experiment Station some tests have been made with a view to compare the merits of the more simple methods of training Grapes. One row was trained on a horizontal trellis made by putting two-feet cross-bars on the top of posts three and a half feet high and then stretching over them three wires, one fastened to the post and the others to the ends of cross-bars. Another row was trained on a single wire three and a half feet high. Another still on a trellis with three wires ranged respectively two feet, three and a half feet and five feet from the ground. Another was trained on a similar trellis with an inverted v-shaped trough over it made of twelve-inch boards, forming a roof twenty inches wide, which it was thought would keep off the rain and dew and to some extent stop the growth of the black-rot fungus. Another row was trained to stakes five feet high. The method of pruning was the same in nearly all cases, except that the vines attached to the stakes were trimmed closer, not more than one-half as much bearing wood being left on each vine as there was on the trellised rows. Without taking into account the differences in the five varieties of Grapes planted, those trained on the horizontal trellis with one branch of the vine running each way on each wire proved the best. The vines on the stakes made the poorest growth and gave the smallest yield. The grapes on the covered trellis have rotted less than those on the row next to it, which was not covered, but the vines yielded fewer grapes, owing to a failure of the fruit to set. The horticulturist of the station remarks that the horizontal trellis used is probably too low for general convenience, since it is easier to pick the fruit by getting under the trellis than by standing at one side of it, because the bunches mostly all hang down and are in plain sight from below.